AMENDMENTS TO THE SPECIFICATION

On page 2, at the top of the page, please insert the following:

POWERLINE DATA COMMUNICATION

On page 2, after the title, please insert the following:

~~Description~~ FIELD OF THE INVENTION

On page 2, line 3, please insert the following:

BACKGROUND OF THE INVENTION

On page 5, before line 15, please insert the following:

SUMMARY OF THE INVENTION

On page 5, line 19, please amend as follows:

~~This object is solved by the method of claim 1 and the apparatus of claim 9.~~ The present invention provides a method for data communication over a powerline network, wherein a transmission channel is divided into a plurality of subchannels each having a partial power as its part of a predetermined total transmission power and a partial rate as its data rate,

wherein initially a partial power is fixed and a signal to noise ratio is obtained for each subchannel and the subchannels are then processed one after the each other with the following steps:

(a) calculating the partial rate of the present subchannel in accordance with its signal to noise ratio so as to result in a predetermined transmission error rate,

(b) quantising said calculated partial rate, and

(c) adapting the partial power of the present subchannel to a change of the partial rate due to said quantisation, so that said predetermined transmission error rate of the present subchannel is maintained; determining the partial power of another subchannel anew based on

the adapted partial power of the present subchannel so that the said predetermined total transmission power of all subchannels is maintained; and obtaining a signal to noise ratio of said other subchannel in adaptation to its newly determined partial power.

The present invention also provides an apparatus for data communication over a powerline network wherein a transmission channel is divided into a plurality of subchannels each having a partial power as its part of a predetermined total transmission power and having a partial rate as its data rate, comprising:

means for initially determining a partial power and obtaining a signal to noise ratio for each subchannel and for then processing the subchannels one after the other with:

a processor for: calculating the partial rate of the presently processed subchannel in accordance with its signal to noise ratio so as to result in a predetermined transmission error rate; quantising the calculated partial rate; adapting the partial power of the present subchannel in accordance with a change in the partial rate due to said quantisation, so that said predetermined transmission error rate of the present subchannel is maintained; newly determining the partial power of another subchannel in accordance with said adapted partial power of the present subchannel so that said predetermined total transmission power of all subchannels is maintained; and obtaining a signal to noise ratio of said other subchannel in adaptation to its newly determined partial power.

On page 7, line 3, please amend as follows:

~~The subclaims relate to preferred embodiments of the invention.~~

On page 7, line 5-6, please amend as follows:

~~Subclaims 2 to 4 relate to embodiments which are particularly simple to implement~~ One embodiment of the present invention is implemented in a digital signal processor.

On page 7, line 7-9, please amend as follows:

~~Claim 5 is directed to a preferred feature for obtaining~~ Also, in one embodiment, the present invention obtains the signal to noise ratio for each subchannel at the beginning of the method.

On page 7, lines 10-13, please amend as follows:

Distributing the transmitted data stream to the subchannels and using methods for error correction in the transmitted data can be simplified if the transmission error rate is the same for each subchannel ~~as set forth in claim 6~~.

On page 7, lines 14-28, please amend as follows:

The transmission conditions on the power line can change in a time scale of seconds or minutes, e.g. when loads are switched on or off. This changes the signal to noise rations of the individual subchannels. Therefore, the signal to noise ratios are preferably obtained again every 0.5 seconds to 30 minutes and steps (a) to (c) are then re-executed for each subchannel. It is more efficient, however, not to execute these steps always after a fixed time period but only if it is judged during data communication that the actual transmission error rate of one or more subchannels differs from the predetermined transmission error rate by at least a certain difference value~~, as set forth in claim 7~~. Preferably obtaining the signal to noise rations and executing steps (a) to (c) again is restricted to only those subchannels which are affected by the changes in the transmission error rates.

On page 7, lines 29-31, pleas amend as follows:

A preferred type of modulation for transmitting the partial data rates on the subchannels is quadrature amplitude shift key ~~as set forth in claim 8~~.

On page 7, after line 31, pleas insert the following:

BRIEF DESCRIPTION OF THE DRAWINGS

On page 8, after line 4, please insert the following:

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT